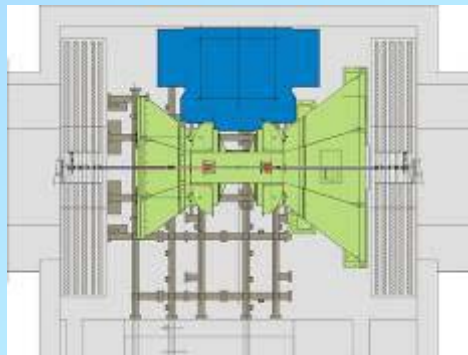
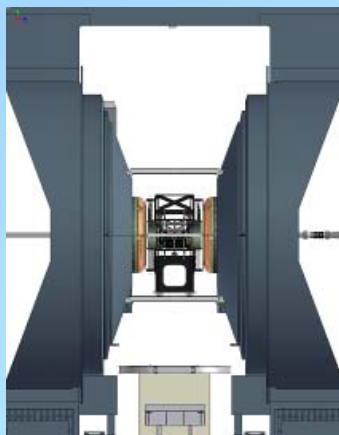
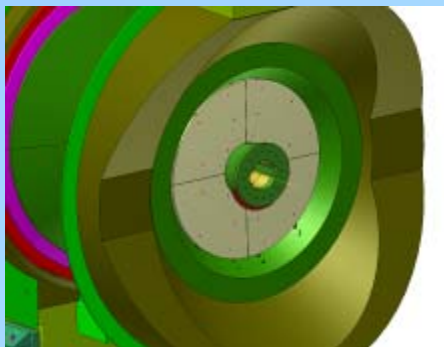


PHENIX WEEKLY PLANNING

TECHNICAL SUPPORT 2010



5/13/2010
Don Lynch

Ongoing Tasks for Run 10

TECHNICAL SUPPORT 2010

Task	Start Date	End Date
Install rack components in RPC3 N racks	in progress	6/1/2010
Attach cables to RPC3 N racks and to Detector $\frac{1}{2}$ octants	in progress	6/1/2010
Commissioning Tests (HV, Mixed gas and Freon only)	5/5/2010	6/11/2010
Send mass flowmeters out for recalibration (DC/PC, MuID, TOF.W)	In Progress	6/30/2010
AH Crane 110 switch for lockout	In Progress	6/30/09

This Week:

- Today's Brief Maintenance/access:
 - RPC prep for commissioning tests:
- Run 10 tech support
- Future upgrade support as necessary
- Complete VTX support structure design & analysis
- VTX Big Wheel re-design (brazements, vendor visit)
- Complete RPC absorber design
- 2010 summer shutdown prep continues:
 - VTX & BP assembly/installation parts & fixtures procurement & fabrication
 - RPC3 S assembly/installation fixtures parts & fixtures procurement & fabrication
- Evaluate AH ramp ground water problems with PE and CAD

RPC3 N Commissioning



5/13/2010

TECHNICAL SUPPORT NO-0

RPC3 N Commissioning

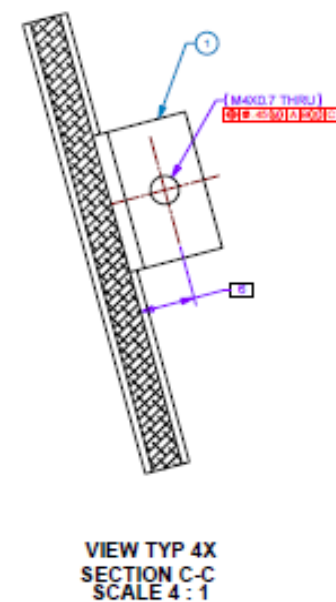
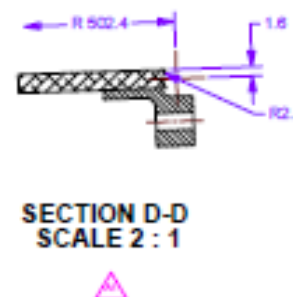
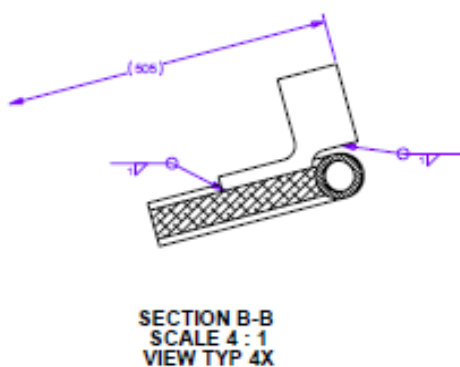
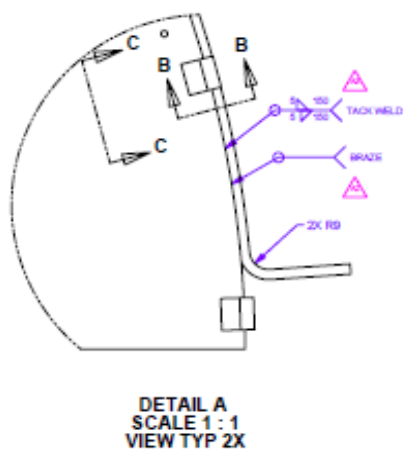
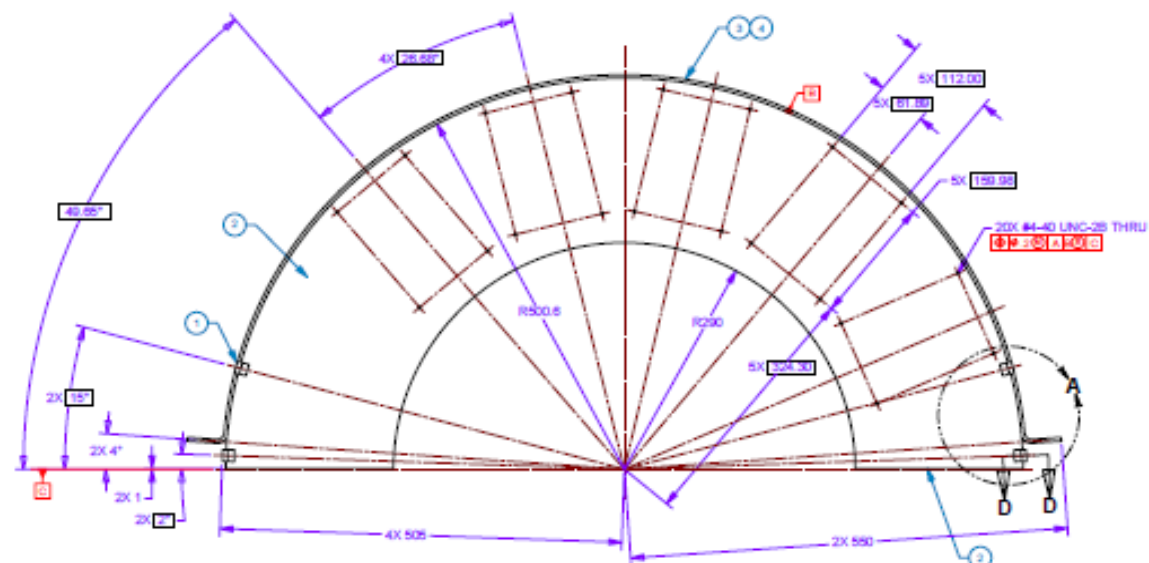


TECHNICAL SUPPORT NO-0

5/13/2010

Big Wheel redesign for braze

TECHNICAL SUPPORT 2010





VTX
subassembly
fixtures



5/13/2010



RPC3S base guide rail assemblies





New Ar Dewar and
PHENIX Empty
Gas bottle storage
slab

List of Gas Lines (51 total so far)

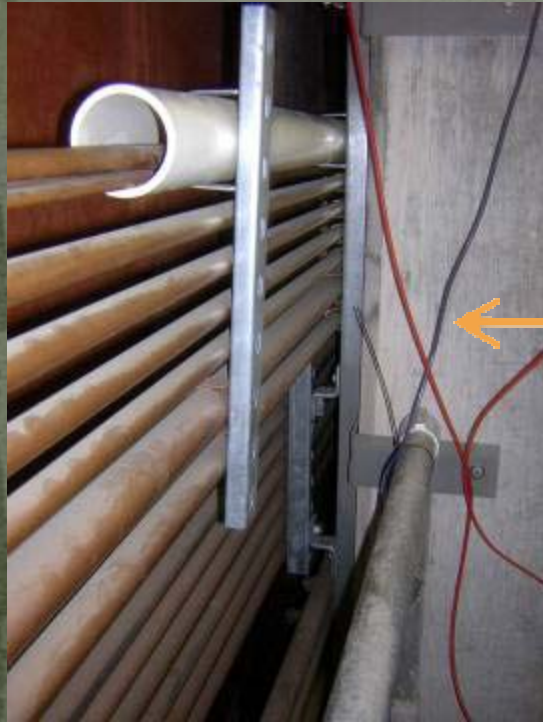
"Front Row" in GMH Go to West Side in the IR

Rack purge air supply-----	1-1/8"
Detector Purge Air Supply-----	1-1/8"
North MuID Return-----	1-1/8"
MuID North Supply-----	1-5/8"
MuID North Purge Supply-----	1-1/8"
MuTr North Supply-----	1-5/8"
MuTr North Return-----	1-5/8"
DC/PC BVP Return (dead)-----	1-5/8"
Nothing-----	2-5/8"
Beam-Beam N2 Cooling-----	5/8"
Helium Bag Supply-----	5/8"
TOF West Supply-----	5/8"
West RICH Control #1-----	3/8"
West RICH Control #2-----	3/8"
West RICH Control #3-----	3/8"
West RICH Buffer Return-----	3/8"
West RICH Supply-----	1-1/8"
MuTr South Supply-----	1-5/8"
MuTr South Return-----	1-5/8"
MuID South Return-----	1-1/8"
MuID South Supply-----	1-5/8"
MuID South Purge Supply-----	1-1/8"

"Back Row" in GMH Go to East Side in the IR

RPC-----	1/2"
East DC Supply-----	5/8"
West DC Supply-----	5/8"
Aerogel Nitrogen-----	7/8"
TRD Nitrogen-----	7/8"
Nothing-----	7/8"
West DC Return-----	1-5/8"
RPC Vent (Not Used)-----	1-1/8"
Nothing-----	5/8"
Nothing-----	3/8"
Nothing-----	3/8"
East DC Return-----	1-5/8"
TEC BPV Return (Dead)-----	1-1/8"
PC Supply-----	1-5/8"
TEC Supply-----	1-5/8"
DC/PC Return-----	2-5/8"
TEC Return-----	2-5/8"
East RICH Supply-----	1-1/8"
TEC CO2 Supply-----	5/8"
East RICH Control #1-----	3/8"
East RICH Control #2-----	3/8"
East RICH Control #3-----	3/8"
East RICH Buffer Return-----	3/8"

South West in Tunnel



Pipes go
under beam
pipe



Gap
behind
MuID



All pipes have to be removed to
install RPC.

5/13/2018

East Side

- This is just a sample of some of the lines on the East.
- The DC/PC lines are the ones insulated.
- There is also a lot of cables for the gas systems that have to be relocated.



Also in the IR



- Example of some on the South West side
- South East has many as well.

The Plan

- At Start of shut down (month +)
 - Label all sides of pipe where they will be cut
 - Cut lines and try to remove in one piece (must use tube cutter)
 - Cap and store removed sections
 - Run temp polyflow lines for life support
- After RPC South is installed (5-6 weeks +)
 - Remove temp poly lines
 - Install removed sections of pipe
 - Some lines need to be relocated and modified.
 - No soldering
 - 1-1/8" or less → Swagelok (metal seal)
 - All larger → morris coupling with custom gasket
 - Pressure test all lines for leaks



Test Setup



Novec Chiller

Vendor	Chiller	KiloWatts	Flow	Material	Del	Price Each
Advantage	M1-5W (BNL 49433)	7032@15F	12gpm @52psi	Cu,	6-7wks	\$9,365
Advantage	M1D-15W (BNL 49255)	22000@15F	36gpm@55psi	Cu	6-7 wks	\$17,000
Affinity	PWK-040K- BE37CBD2 (BNL 1335)	3000@16F	5 gpm@60psi	Cu	8-10wks	\$22,519
Affinity	PKW-060k- BE44CBD2 (BNL 1262-2)	6000@15F	8gpm@60psi	Cu	8-10wks	\$27,225
Affinity	Custom (BNL 1250)	6000@17F	10gpm@ 30psi	SS,Ni	12- 14wks	\$41,667

Big Wheel chiller

Vendor	Chiller	KiloWatts	Flow	Material	Del	Price Each
Advantage						
Affinity	Custom FAA-032L- ED21CBD4 (BNL1343)	9800@68F	16gpm@35 psi	SS, NI	12-14wks	\$11658

Two sets of problems:

- **High voltage. Need access to HV cards by removing the whole electronics in the sector**

Map of HV problems:

- **North side (X1), sectors 2 and 5**
- **South side (X2), sectors 6, 8, 10, 14**

- **Electronics. Need removal part of electronics in particular sector**

Map of electronics problems:

- **North side, sectors 2,12**
- **South side, sectors 4, 6, 15, 16**

Sum map :

North

Sector Board

2 3,4

5

12 * 3,4

* - partial dissembling

South

Sector Board

4* 3,4

6 1

8

10

14

15* 2

16* 4

Total: 10 sectors, 9 ADS/TMC boards (most probably loose contact)

What do we need at BNL? Preliminary list.

HV test:

AC power, man lift

HV on, racks WCB1, WCB2, WCN14, WCS13 powered, va003,
hv server running

Gas: Ar-CO₂ , dummy grounds for signal cables

Electronics test:

Cooling water

Low voltage ON - WCS11 rack powered

Arcnet, phoncs1 (or phoncs4 ?), phoncsa

DAQ: phoncsc/b, DCM, standalone, va003

Man power (some need fall protection training!)

PNPI Yu.Riabov, Roschin (financing? Invitations, visa!)

Vlad

SBU Benji, Tom?, student?, + post-doc?, Chuck Pancake

BNL Rob/Carter, 1 person from DAQ group,
designated person (Bob Azmoun?), man lift operator?

Probable time schedule

Dates: July 26 - Aug. 13. 15 working days

Step 0. $\frac{1}{4}$ day

General planning meeting

Step 1. 3 days

Start with DAQ running and HV “in hands”

Start gas flow 2.5-3 days

Disassemble electronics, installation of dummy grounds

Transportation boards to SBU, start board testing

Step 2.

Work on HV cards and HV problems, 2-3 days

?? Cut the mylar window for wire removal ??, 1-2 days

Final test with HV

Work on electronics and its test at SBU - 5-7 days

Step 3.

Start signal board and ASD/TMC boards mounting after HV work finished. 2-3 days

Step 4.

Final electronics assembling and testing. 3-5 days

Next Week

Scheduled Maintenance Access: Wed. 5/19

- Prep for RPC 3N

Track and prep for 2010 shutdown

Prepare for VTX, RPC3S, BP & absorber installation reviews

Fabrication for VTX support and Bigwheels

Design of installation tools and fixtures for VTX

Design of installation tools and fixtures for absorber

Future upgrades support

Run 10 support

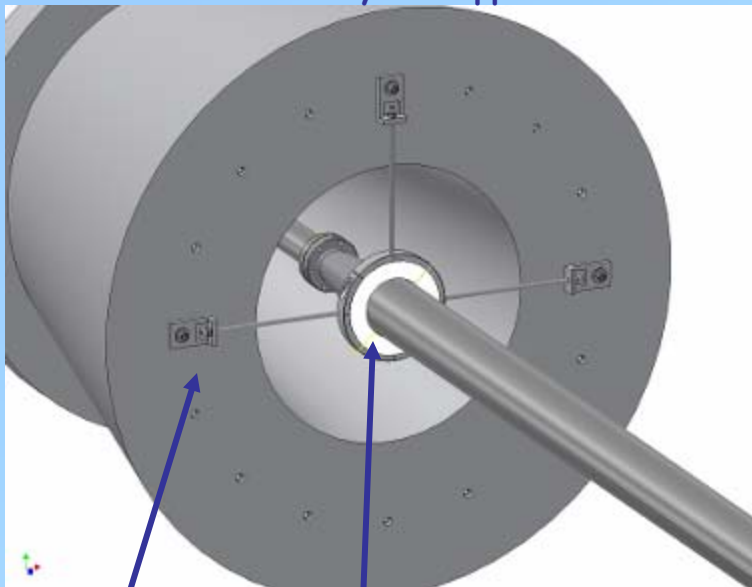
2010 Tasks

Start Date End Date

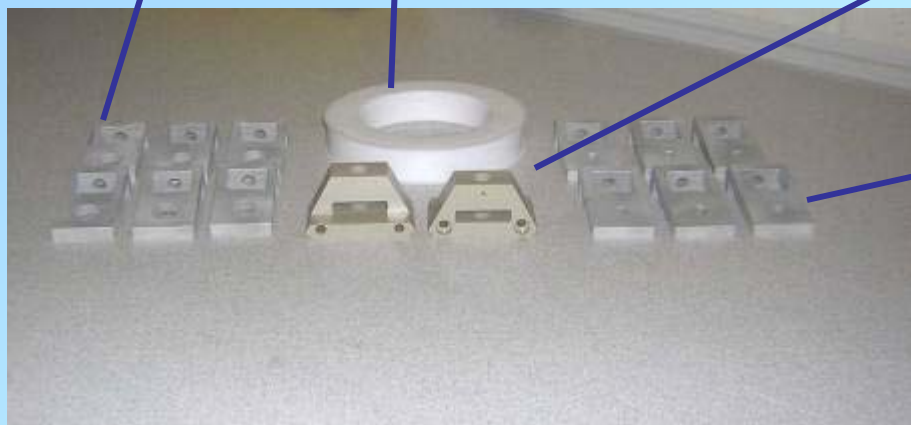
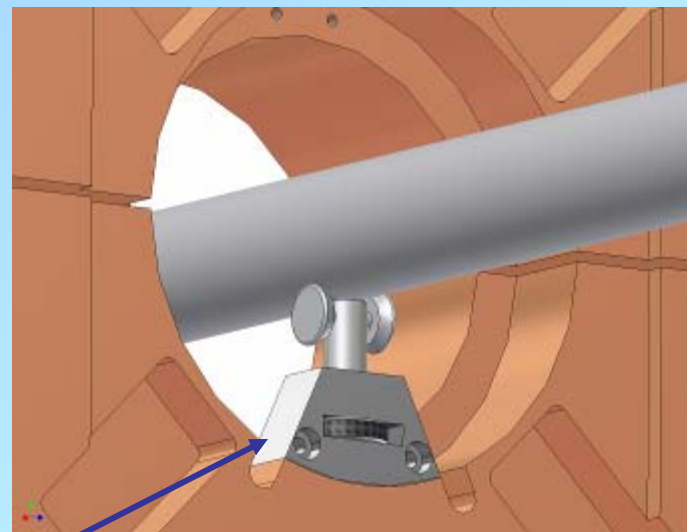
Run 10	In progress	6/21
VTX Installation Plan (Final)	In progress	5/31
RPC3S Installation Plan (Final)	In progress	5/31
Design support structure, alignment scheme for VTX	In progress	3/31
Specify and procure electronics racks and support equipment for VTX	In progress	5/31
Fabricate beam pipe supports	In progress	5/1
Beampipe NEG coating (CERN)	4/15?	5/31?
Fabricate/procure parts for RPC3 S installation	In progress	5/1
Fabricate/procure parts for VTX installation	In progress	6/1
End of run 10	6/23	6/23
End of Run Party	~6/11	~6/11
Prep IR for shutdown	6/1	7/1
Complete unfinished business for MuTrgr FEE & RPC3 North	6/23	8/1
Install Beam pipe	7/1	9/1
Install VTX	8/1	11/1
Install RPC3 South	6/23	11/1
2010 Shutdown Other Tasks	6/23	12/1

TECHNICAL SUPPORT 2010

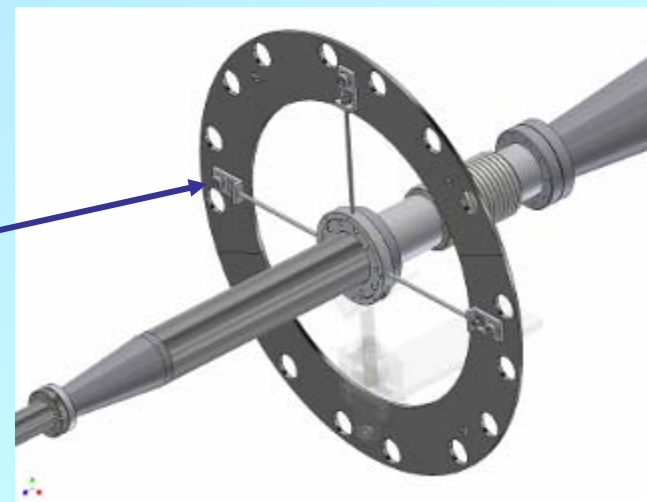
South BBC Cavity BP support



CM central BP supports (2 req'd)



BP support components from CS



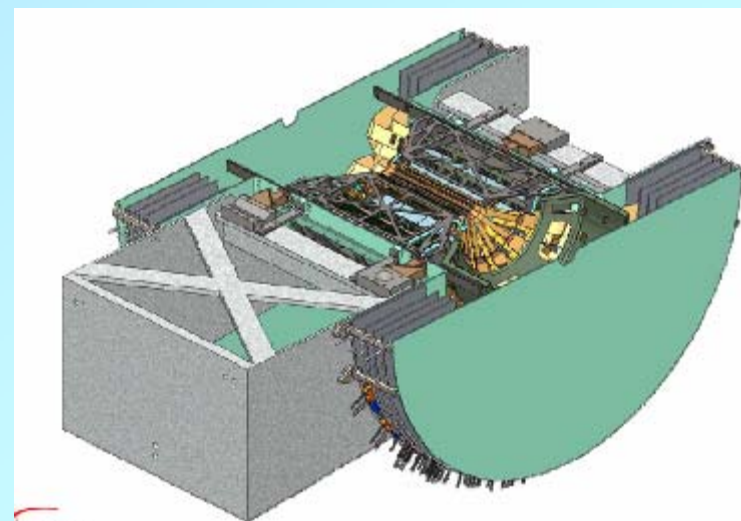
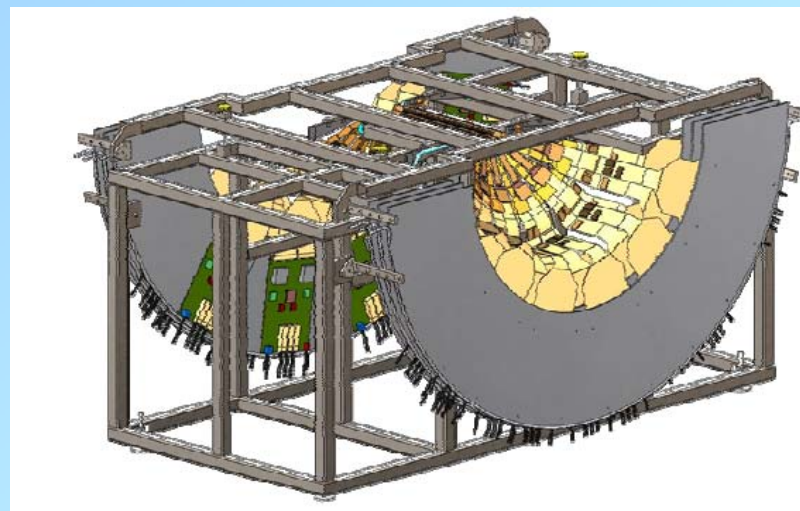
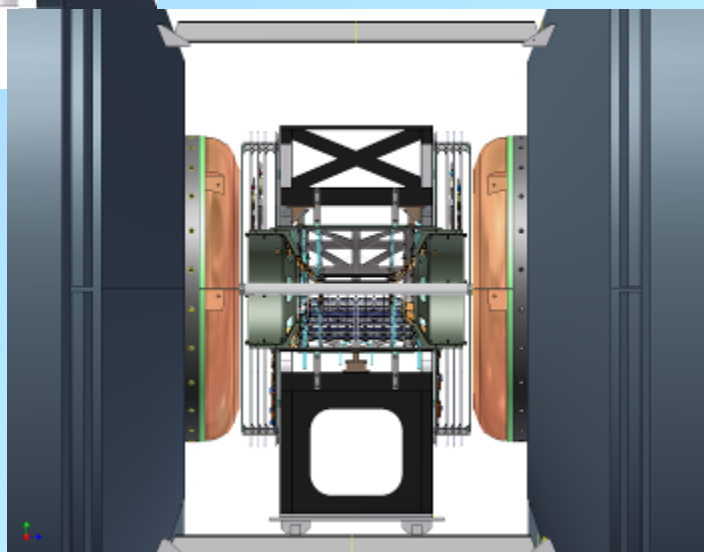
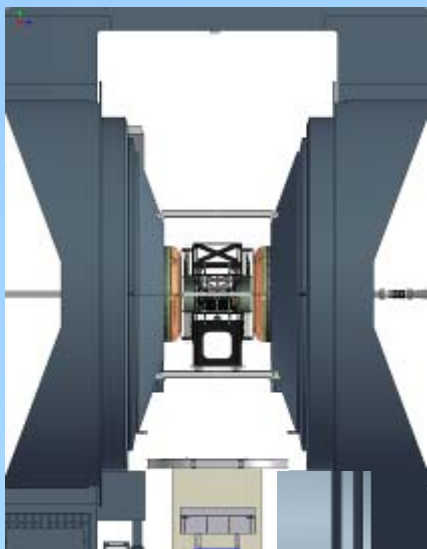
North MPC Cavity BP support

TECHNICAL SUPPORT NO-0

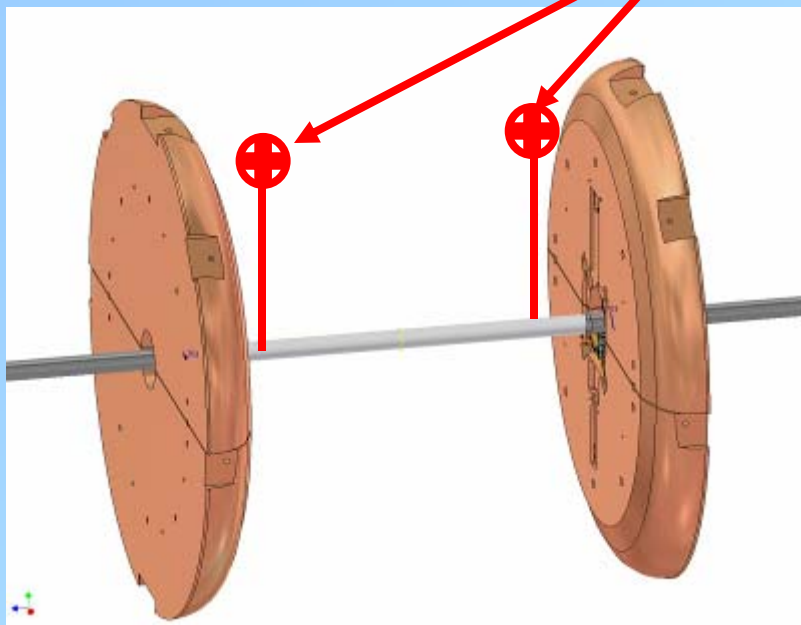


VTX Support Structure Base
Assembly Design In Progress
Fixtures being re-designed at
PHENIX

TECHNICAL SUPPORT NO-0

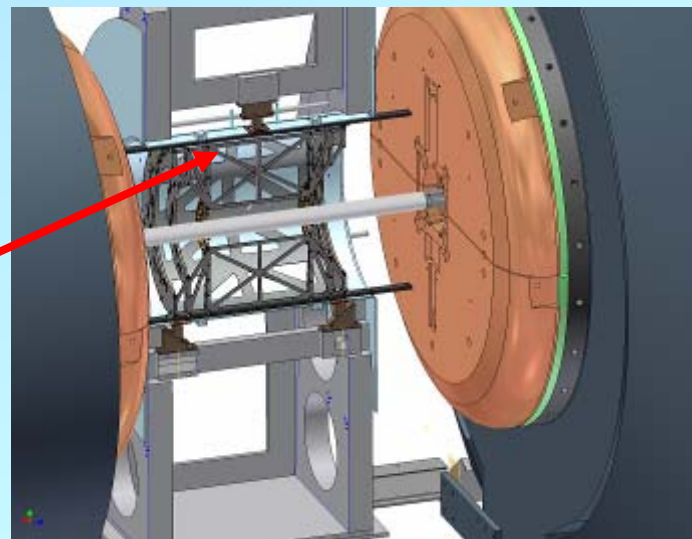


5/13/2010

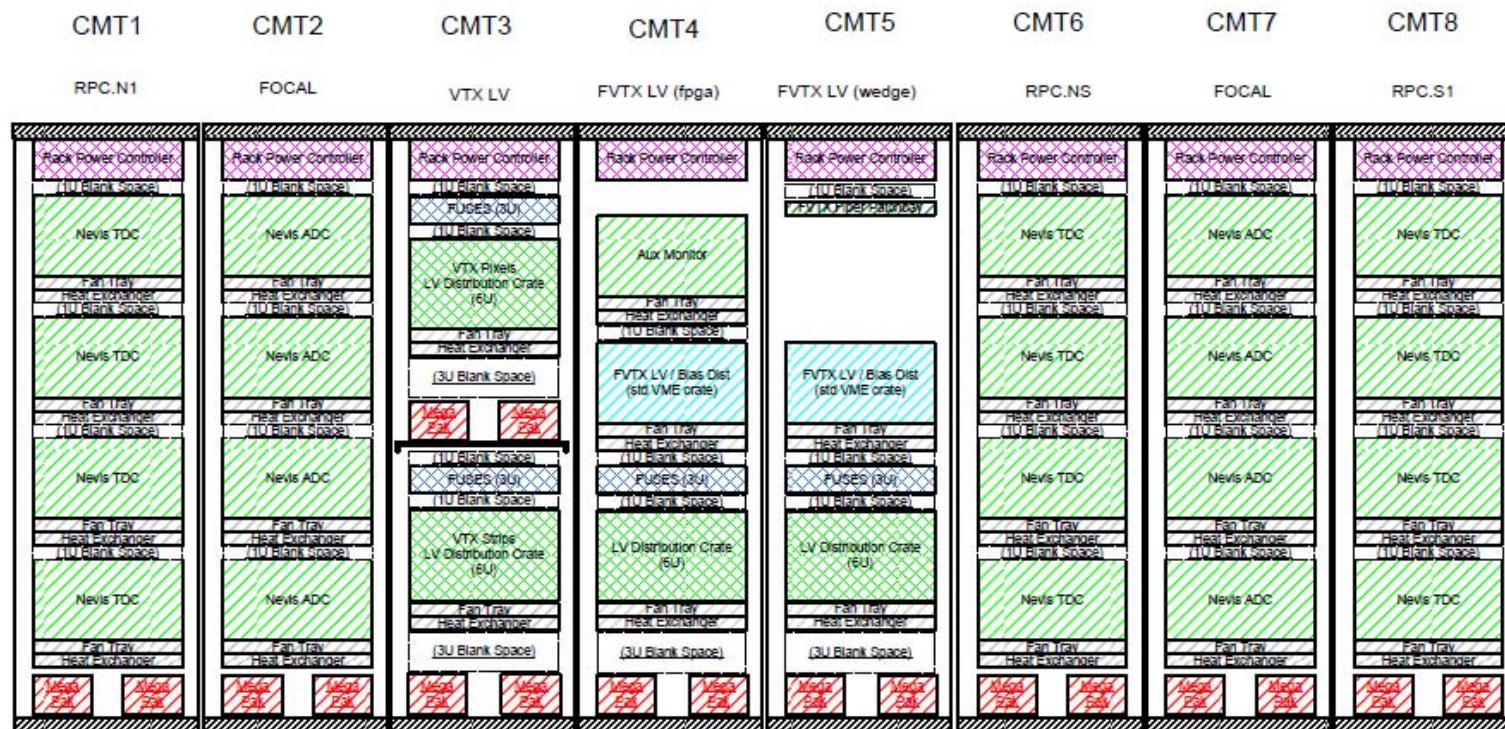


Survey Targets and fixtures TBD
Must be able to align BP to req'd
radial and angular accuracy
without VTX and with VTX in
clamshells open configuration.

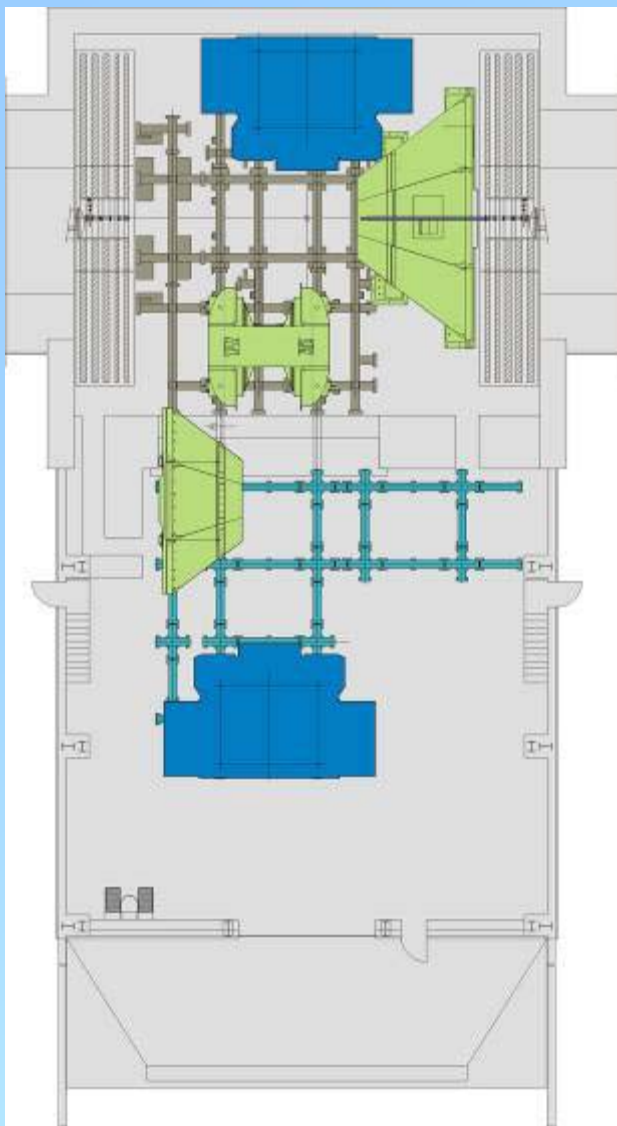
$\frac{1}{2}$ of VTX
detector support
structure



PHENIX Bridge Racks



S. Boose
3/26/2010



Major PHENIX Components during shutdown when Old beampipe is out and new beampipe is ready to go in. Approximately last week in July.

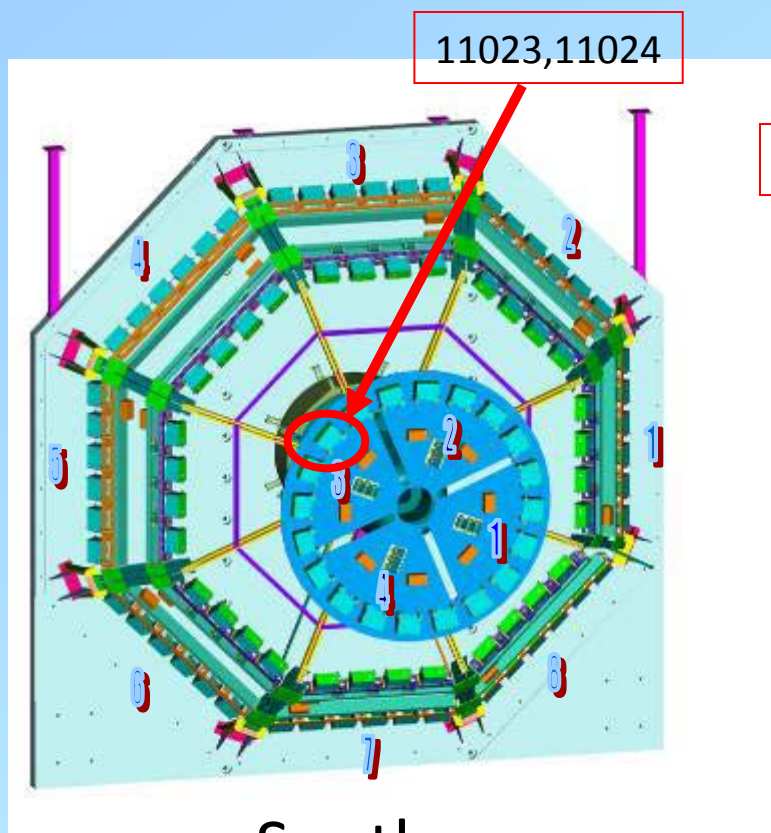
This is the optimal point for DC, MuTr Station 1, and/or RPC absorber work. Potential work in these areas is still under review by PM.

Note: Absorber installation to be done during this period. MuTr station 1 work shall be limited to work in situ (i.e. station 1 will not be removed). Similarly DC/PC1 work will be limited to work which can be accomplished with the DC in situ, although, if requested, it may be possible to translate the DC on its mounting rails to allow limited access to DC/PC1 electronics.

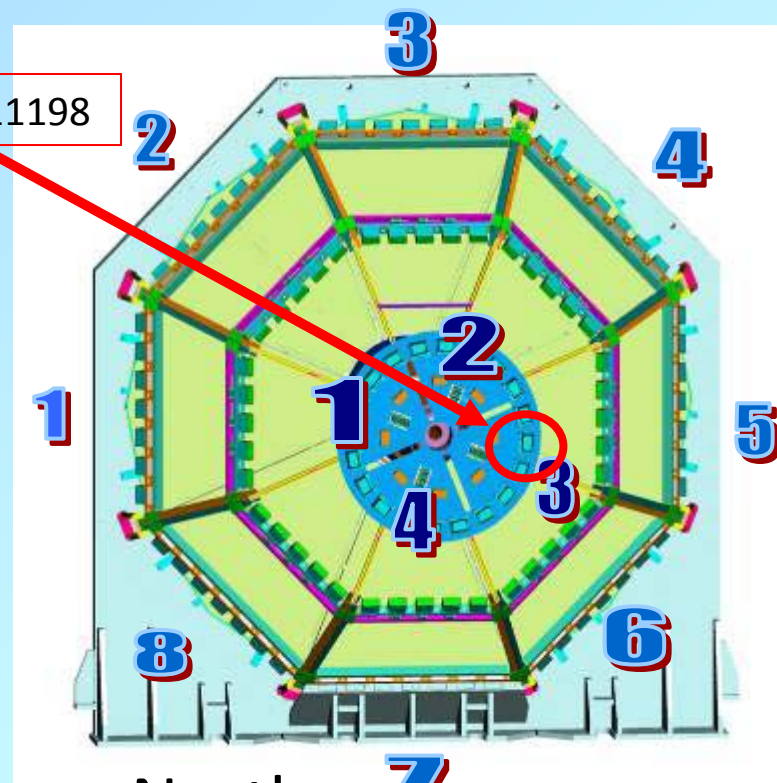
Shutdown 2010 - muTr FEE repairs

FEE - one FEM in each station-1

- 11023, 11024 - south S1 Q3 C2 (top); may be glink/clink RX module
- 11197, 11198 - north S1 Q3 C4 (bottom east); probably controller



South



North

5/13/2010

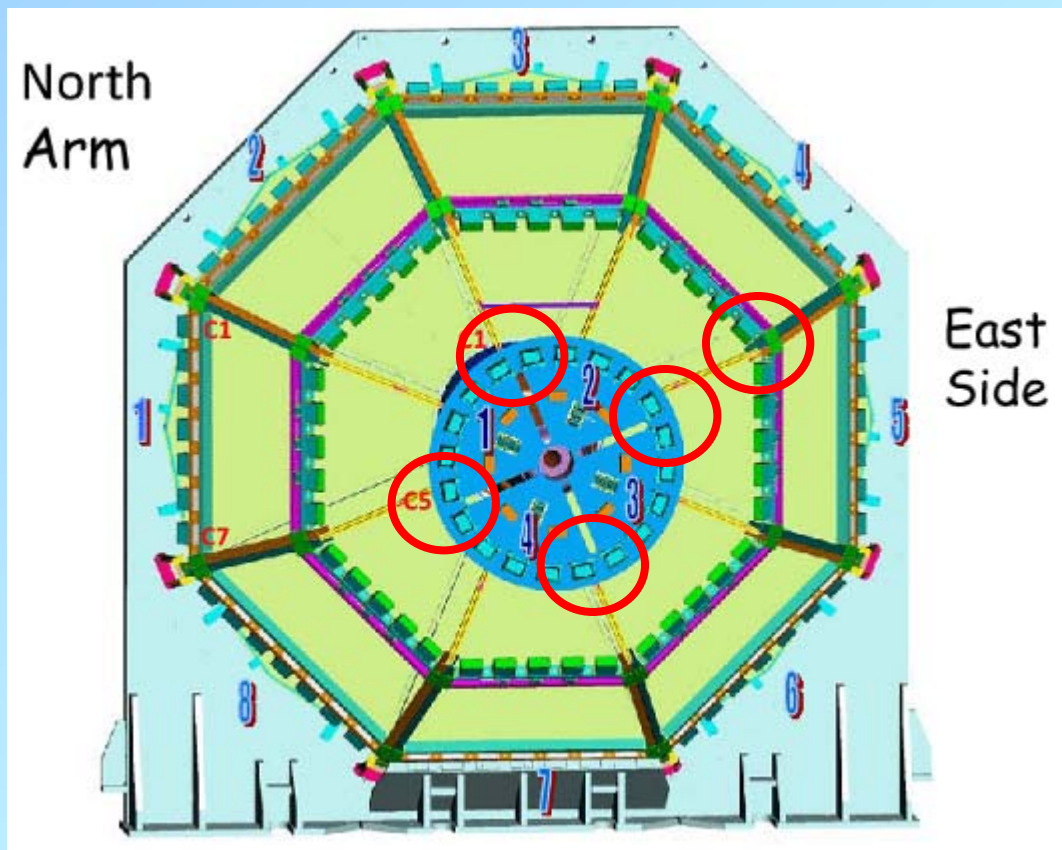
MJL

Shutdown 2010 - Calibration cable termination repairs

TECHNICAL SUPPORT 2010

Calibration cable connections - fix terminations

- north S1 - O2 G1; O3,4 G3; O6 G3; O8 G2 - all infinite termination now
- north S1 - O3,4 G1,2 - 57 ohms (rest all 105 ohms)
- north S2 - O5 G1 - $\frac{1}{2}$ gain of all others (probably can't reach)



5/13/2010

MJL

Shutdown 2010 - HV

- disabled but cannot be reached (S271-6, S311-0, S331-2, N222-6, N341-0)
- S381-5 high current - also can't be reached?

Nothing can be done w/o scaffolding

Apr 11 09:00:31 SOUTH MUON TRACKER HV SUMMARY												
S111	S112	S113	S121	S122	S123	S131	S132	S133	S141	S142	S143	
1885.5	1885.1	1885.0	1884.4	1885.4	1934.8	1936.0	1934.4	1885.4	1885.3	1885.3	1936.2	
---	---	---	---	---	---	---	---	---	---	---	---	
0.00	-0.02	0.01	0.03	0.01	0.11	-0.03	0.04	0.00	-0.01	0.03	0.04	
-0.02	0.01	0.02	0.03	-0.01	0.08	-0.02	0.16	0.01	-0.01	0.02	0.01	
0.02	0.05	0.01	0.02	-0.04	0.10	0.04	0.00	0.02	-0.02	0.02	0.00	
0.01	0.01	0.00	0.02	0.01	0.09	0.00	0.01	-0.01	-0.02	0.06	-0.06	
-0.01	-0.02	0.03	0.04	0.00	0.09	-0.01	0.00	-0.06	0.01	-0.01	-0.01	
0.00	0.00	0.00	0.09	-0.06	0.08	0.00	0.05	0.00	0.00	0.00	-0.06	
S151	S152	S153	S161	S162	S163	S171	S172	S173	S181	S182	S183	
1886.9	1886.5	1885.1	1940.3	1935.6	1933.9	1885.1	1885.3	1936.0	1885.1	1885.0	1896.1	
---	---	---	---	---	---	---	---	---	---	---	---	
0.00	-0.01	0.01	0.08	0.03	0.00	-0.04	0.00	0.01	0.02	0.00	0.06	
0.01	0.05	-0.01	0.15	0.10	0.02	-0.04	0.01	0.00	0.09	0.01	0.01	
0.00	-0.01	0.00	0.08	0.10	0.00	0.01	0.00	0.00	0.03	0.01	-0.01	
0.01	0.00	0.00	0.08	0.08	0.06	0.02	-0.02	0.00	-0.02	0.03	0.04	
0.03	-0.03	-0.02	0.10	0.14	0.00	-0.01	0.01	0.00	0.02	0.02	0.00	
0.09	-0.06	0.00	0.12	0.05	0.02	0.00	0.00	0.04	0.04	0.04	0.00	
S211	S213	S222	S231	S233	S242	S251	S253	S262	S271	S273	S282	
1959.2	1909.8	1911.6	1959.9	1960.5	1960.3	1910.2	1909.8	1961.0	1909.8	1911.2	1911.5	
-0.03	-0.47	0.03	0.12	0.00	0.04	-0.03	-0.04	0.00	0.03	0.01	0.02	
0.00	0.00	0.00	0.10	-0.01	0.05	-0.02	-0.01	0.03	0.02	0.03	0.07	
0.01	-0.14	0.02	0.05	0.04	0.07	-0.01	0.01	-0.01	0.03	0.00	0.00	
0.35	-0.11	0.00	0.06	0.04	0.06	0.02	0.00	-0.04	0.02	0.02	-0.01	
0.01	-0.09	-0.01	0.03	0.08	0.01	0.01	-0.02	0.02	-0.01	-0.06	0.00	
0.08	-0.06	-0.02	0.04	0.06	0.00	0.01	0.01	0.01	0.03	0.02	0.00	
0.01	-0.09	0.00	0.02	0.03	0.00	0.00	0.00	0.01	0.00	-0.02	0.02	
0.02	-0.03	-0.05	0.06	0.01	0.02	-0.02	0.00	0.00	---	0.00	0.04	
S311	S321	S331	S341	S351	S361	S371	S381					
1975.6	1954.3	1967.0	1934.0	1934.0	1935.2	1936.6	1935.3					
---	---	---	---	---	---	---	---					
0.02	0.12	-0.02	0.11	-0.06	0.02	0.15	0.00					
0.01	0.07	---	0.04	0.00	0.00	0.07	0.04					
0.01	0.03	0.00	0.06	0.00	-0.07	0.11	0.05					
0.02	0.01	-0.06	0.01	0.00	0.10	0.10	0.06					
0.09	-0.03	0.08	0.05	0.06	0.06	0.11	16.16					
0.00	-0.02	0.09	0.03	-0.02	0.01	0.07	0.04					
0.15	-0.06	0.05	0.01	0.02	0.02	0.10	0.04					

Mar 8 08:13:34 NORTH MUON TRACKER HV SUMMARY												
N111	N112	N113	N121	N122	N123	N131	N132	N133	N141	N142	N143	
1875.8	1875.2	1925.1	1876.1	1874.8	1876.2	1875.3	1894.9	1925.0	1875.2	1915.6	1926.4	
---	---	---	---	---	---	---	---	---	---	---	---	
0.53	0.49	0.55	0.53	0.53	0.53	0.50	0.54	0.57	0.51	0.57	0.58	
0.53	0.54	0.57	0.58	0.55	0.51	0.51	0.57	0.56	0.54	0.58	0.58	
0.56	0.51	0.59	0.55	0.54	0.54	0.55	0.55	0.61	0.50	0.57	0.60	
0.56	0.51	0.58	0.53	0.52	0.49	0.47	0.56	0.54	0.54	0.52	0.53	
0.48	0.54	0.53	0.52	0.58	0.53	0.52	0.52	0.53	0.50	0.57	0.56	
0.54	0.49	0.53	0.53	0.49	0.50	0.50	0.53	0.59	0.48	0.52	0.51	
N151	N152	N153	N161	N162	N163	N171	N172	N173	N181	N182	N183	
1925.1	1925.3	1925.3	1884.4	1924.5	1926.4	1875.2	1875.3	1924.9	1874.0	1905.7	1926.1	
---	---	---	---	---	---	---	---	---	---	---	---	
0.55	0.58	0.55	0.50	0.56	0.58	0.50	0.50	0.53	1.13	0.56	0.55	
0.60	0.60	0.54	0.54	0.58	0.55	0.53	0.50	0.54	1.12	0.55	0.54	
0.56	0.43	0.53	0.59	0.78	0.54	0.51	0.48	0.55	1.16	0.51	0.58	
0.52	0.60	0.62	0.51	0.47	0.54	0.53	0.51	0.54	1.12	0.56	0.54	
0.53	0.50	0.56	0.52	0.52	0.54	0.53	0.47	0.55	1.09	0.51	0.55	
0.50	0.48	0.51	0.54	0.53	0.55	0.54	0.48	0.54	1.09	0.50	0.52	
N211	N213	N222	N231	N233	N242	N251	N253	N262	N271	N273	N282	
1949.8	1950.6	1900.3	1939.9	1951.1	1899.8	1950.4	1939.2	1950.5	1900.4	1950.3	1901.2	
0.56	0.54	0.53	0.57	0.54	0.49	0.57	0.52	0.53	0.49	0.53	0.51	
0.58	0.63	0.54	0.59	0.56	0.58	0.73	0.62	0.54	0.61	0.60	0.56	
0.56	0.58	0.52	0.58	0.56	0.55	0.58	0.51	0.49	0.50	0.55	0.52	
0.53	0.53	0.52	0.55	0.53	0.51	0.51	0.49	0.51	0.51	0.52	0.49	
0.58	0.53	0.49	0.55	0.53	0.51	0.59	0.43	0.52	0.52	0.58	0.52	
0.62	0.57	0.57	0.60	0.78	0.51	0.55	0.51	0.67	0.53	0.62	0.55	
0.61	0.52	---	0.59	0.57	0.54	0.65	0.55	0.51	0.52	0.57	0.51	
0.53	0.52	0.47	0.52	0.54	0.50	0.53	0.47	0.52	0.54	0.58	0.48	
N311	N321	N331	N341	N351	N361	N371	N381					
1975.0	1924.4	1975.7	1926.0	1976.3	1975.4	1954.6	1925.3					
1.06	0.84	0.87	---	1.20	0.64	0.57	0.57					
1.49	0.85	1.08	0.59	1.24	0.61	0.58	0.64					
1.28	0.91	1.05	0.70	1.30	0.63	0.66	0.60					
1.18	0.88	1.19	0.71	1.35	0.57	0.67	0.61					
1.26	0.82	1.18	0.51	1.23	0.54	0.58	0.48					
1.23	0.89	1.13	0.73	1.32	0.74	0.66	0.62					
1.09	0.91	1.00	0.59	1.38	0.65	0.60	0.53					
1.30	0.89	1.19	0.62	1.35	0.65	0.59	0.58					

Shutdown 2010 - Other

muTrg, Itaru et al.

- south S3 O7 - threshold problem
- north S3 O1 - high noise (not reachable); S3 O4 - bad ADTX board

South arm disconnect/reconnect (fibers, power)

- lower glink/clink crates on top of eyebrow (to fit thru big IR door)
- move out/in; reconnect & test

Anode terminations

- station-1 gap-1 both arms - recap & terminate?
- station-2 all gaps, where we can reach w/o scaffolding (2 lower octants/arm) - terminate (under dry-air manifolds)?



5/13/2010



MJL

New Beampipe Pre-Shutdown Prep

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Bp and sections acceptance tests and inspection	Done	
Send BP transitions & spool to SAES for NEG Coating	5/7/2010	In Progress
Send beampipe to CERN for NEG Coating	5/15/2010?	
Fabricate beampipe supports	5/31/2010	In Progress
Design BP installation and survey tools/fixtures	5/31/2010	In Design queue
Memorial Day: Lab Holiday	5/31/2010	Enjoy the weekend
Choreograph removal of old beampipe and installation of new (final)	6/1/2010	In Progress
Test and inspect beampipe supports	6/15/2010	
Beampipe Installation Review (Final)	6/15/2010	
Receive bp back at BNL	7/31/2010	
Receive BP transitions & spool back at BNL from SAES after NEG Coating	7/31/2010	
Final acceptance and inspection bp and sections	8/6/2010	
Fabricate BP installation and survey tools/fixtures	8/6/2010	

5/13/2010

VTX Subassembly, Top Assembly, Installation and Integration Prep

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Fabricate/prepare/procure assembly workspace, tools and fixtures	5/15/2010	In Progress
Mechanical re-design of BigWheels	5/15/2010	In Progress
Specify Cooling sensor & BigWheel system components	5/15/2010	In Progress
VTX Installation Plan	5/31/2010	
VTX Survey Plan	5/31/2010	Consult w/ F. Karl
Installation Review (ESRC)	5/31/2010	
Beampipe & VTX Installation Work Permits	5/31/2010	
Design fixtures, techniques and mockups for installation, alignment and survey	5/31/2010	
Memorial Day: Lab Holiday	5/31/2010	Enjoy the weekend
Specify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	6/15/2010	
BigWheel Fabrication & Procurement	7/15/2010	
Receive, inspect, test, rework and qualify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	7/15/2010	

5/13/2010

VTX Subassembly, Top Assembly, Installation and Integration Prep (cont'd)

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Fabricate/procure detail components for installation, support and alignment, including station 1 work platforms	6/30/2010	
Fabricate fixtures, techniques and mockups for installation, alignment and survey	6/30/2010	
4 th of July Holiday	7/5-7/6/2010	Enjoy the long weekend
Receive & inspect components (installation, support, alignment & Survey)	7/15/2010	
Assemble Hemisperes	7/15/2010	Probably will be delayed to the end of Aug
Mock installations/alignments, bench tests	7/31/2010	Probably will be delayed to the end of Aug
Cooling system procurement	8/31/2010	

RPC3 Pre Shutdown Prep

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare Installation Plan	5/31/2010	In Progress →
Design RPC Absorbers	5/31/2010	
Design Absorber Installation fixtures & tools	5/31/2010	
Fabricate PHENIX parts	5/31/2010	In Progress →
Receive and inspect CS fabricated parts	5/31/2010	In Progress →
Memorial Day: Lab Holiday	5/31/2010	Enjoy the weekend
Prepare work permit for installation	6/1/2010	
Receive purchased parts	6/4/2010	
Assemble, test and burn-in 1/2 octants	6/18/2010	
Pre-Assemble base components at PHENIX	6/18/2010	
Fabricate Absorber Details	7/31/2010	RPC Group and PHENIX
Fabricate/procure Absorber Installation fixtures & tools	7/31/2010	

5/13/2010

Start of Shutdown

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
DAQ Tests	6/4/2010	
Purge Gas From Detectors	6/8/2010	
EOR Party	6/11/2010	
End of Run 10	~6/14/2010	
Remove BP Collar	6/18/2010	As early as possible after 6/1
Move MMS south	6/18/2010	As early as possible after 6/1
Prep EC for move to EC	6/18/2010	As early as possible after 6/1
Close North and South BP gate valves and lock closed for until new BP is installed	6/18/2010	
Open and disassemble wall	6/18/2010	
Remove EC ladder and fold platforms	6/25/2010	
Move EC to AH	6/28/2010	
Install cart	6/28/2010	
Move Collars to AH	6/30/2010	
Install decking	6/30/2010	
Install Manlift	6/30/2010	
Remove RPC2 Prototype, support brackets, cabling & Piping	6/29/2010	
Remove MMS east vertical lampshade	6/30/2010	

5/13/2010

Beampipe De-installation

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
4th of July Holiday & Floating Holiday	7/5&7/6/2010	Enjoy
Remove HBD's and HBD cables Remove RXNP's and cables	7/9/2010	Concurrent with Start of shutdown tasks
Remove MPC's	7/16/2010	Concurrent w MPC's
Remove BBC's	7/16/2010	Concurrent with BBC's
Position MMS for Vacuum break	7/19/2010	
Install Temporary supports for old BP	7/19/2010	Supports TBD
Break vacuum on north side of MMS	7/19/2010	
Remove south bellows	7/19/2010	
Move MMS north, remove spool and south3-5 transition	7/20/2010	
Move the MMS south & Prep MMS for move to AH	7/23/2010	Begin MMS prep with shutdown start
Move CM south, remove north bellows	7/23/2010	
Move old Be bp south into MMS and move CM north	7/23/2010	
Move MMS to shutdown park position	7/23/2010	
Remove old Be BP	7/23/2010	
Move CM south and east	7/23/2010	
Remove north 3 to 5 transition	7/23/2010	

5/13/2010

New Beampipe installation

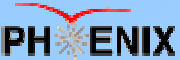
PHENIX

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare north 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	7/23/2010	CAD
Prep CM North and South for Absorber and install	8/13/2010	(Install if absorber rec'd)
Install north 3 to 5 transition in MMN	8/13/2010	
Install new Be pipe in CM on temp supports	8/17/2010	
Move CM back to beamline & connect new Be BP to 1-5/8 transition and bellows and north 3-5 transition	8/17/2010	
Move CM to run position	8/18/2010	
Prealign Be/Alum pipe with transitions attached on new BP supports At MPC north, BBC south and north nosecone	8/19/2010	
Prepare south 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	8/19/2010	
Install south 3 to 5 transition, bellows and 1-5/8 to 3" transition in MMS	8/20/2010	
Move MMS back into IR on beamline	8/20/2010	
Move CM south, slide Transition assembly in MMS north and connect to new Be BP	8/20/2010	
Move CM and MMS north and install south spool. Leak check. Move MMS South	8/27/2010	
Install temporary bakeout supports	8/27/2010	
Install bakeout blankets and monitoring	8/27/2010	
Labor Day Lab Holiday	9/6/2010	Enjoy
Bakeout New BP and activate NEG coating	9/10/2010	How Long?
Leak check BP	9/10/2010	
Re-install MPC's including Cables and services Re-install BBC's including Cables and services	9/24/2010	Concurrent efforts
Move CM to run position	9/24/2010	
Final alignment of new BP	10/1/2010	

5/13/2010

VTX Installation, VTX Services and Electronics



TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Install and align VTX rail attachment hardware to CM	10/1/2010	Install during bakeout? →
Install and align VTX rails parallel to beam line	10/8/2010	→
Install and align VTX rails perpendicular to beam line	10/8/2010	→
Install and align west half detector module	10/15/2010	→
Install and align east half detector module	10/22/2010	→
Install mechanical support structures for VTX services and electronics	10/29/2010	Concurrent Effort →
Install Cable trays	10/29/2010	→
Install racks	10/29/2010	→
Install chiller	10/29/2010	→
Install cables, plumbing	10/29/2010	→
Connect cables and plumbing	10/29/2010	V →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy →
Test and commission	12/1/2010	↓

5/13/2010

RPC3 South Prep, Early Shutdown

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Remove wiring, walkovers, FCAL and scintillator hardware that would otherwise interfere with installation	7/2/2010	PHENIX →
4th of July Holiday	7/5 & 7/6/2010	Enjoy →
Remove/relocate shielding	7/9/2010	Riggers →
Remove crystal palace & vapor barrier	7/16/2010	CAD →
Inspect Gap 5 south for legacy items/problems	7/23/2010	→
Address legacy items/problems as convenient prior to shutdown start	7/30/2010	→
Install lighting & relocate sensors as necessary	8/6/2010	Electrician →
Temporarily relocate, re-position or otherwise address interfering piping, cable trays	8/20/2010	PHENIX (w/ CAD Help?), Electrician →
Remove RPC prototype	8/20/2010	→
Pre-survey $\frac{1}{2}$ octant reference points	8/27/2010	Surveyors →
Drill and tap $\frac{1}{2}$ octant and rotating piston mounting points	8/31/2010	→
Build/install access and work platforms for walk on top of MuID steel including stairs from MMS eyebrow	8/31/2010	Carpenters →
Final cleaning and prep of gap 5 for grouting	9/3/2010	→
Labor Day Lab Holiday	9/6/2010	Enjoy →
Pre-installation orientation meeting with masons and riggers	9/7/2010	→
Position lifting equipment in tunnel	9/10/2010	Riggers →
Move east and west base structures into south tunnel and assemble on east and west sides of pedestal respectively. Include translation control fixtures	9/10/2010	Riggers & PHENIX techs →

RPC3 South Installation

TECHNICAL SUPPORT NO-0

Task	Due By	NOTES
Install and align base structures on east and west sides of gap 5	9/14/2010	
Prepare for grouting	9/15/2010	
Install grout	9/16/2010	
Install pitch control rails on pedestal and gap 5 east & west inner walls	9/17/2010	
Install upper suspension support hardware	9/17/2010	
Install $\frac{1}{2}$ octants, 2 at a time in accordance with work plan/work permit		
<i>Transport $\frac{1}{2}$ octants 2 at a time from RPC factory to south tunnel on angled transport carts</i>		
<i>Transfer $\frac{1}{2}$ octants from angled transport carts one at a time to temporary free standing and re-orienting roller fixture (fore and aft wheels and axel)</i>		
<i>Lift (and re-orient if appropriate) $\frac{1}{2}$ octant and install into base structure, previously installed $\frac{1}{2}$ octant or upper suspension hardware as appropriate per work plan</i>		
<i>Pre-align each $\frac{1}{2}$ octant as installed</i>		
<i>Perform electrical integrity tests before proceeding to next pair of $\frac{1}{2}$ octants</i>		
<i>After all $\frac{1}{2}$ octants are in place and tested, join east and west halves of full south station 3 detector and align to survey markers</i>		
	10/15/2010	Riggers & PHENIX Techs

5/13/2010

RPC3 South Integration

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Final survey	10/22/2010	Surveyors →
Install new cable trays and piping supports	10/29/2010	Electrician, earlier if possible →
Re-install MuID wiring and pipes	11/5/2010	→
Install south thermal/vapor barrier	11/19/2010	CAD →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Re-install MuID gas rack	11/30/2010	→
Commissioning and final acceptance tests	11/30/2010	RPC Group
Install RPC3 HV, LV and signal wiring and gas lines	11/30/2010	
Install RPC3 South gas distribution rack	11/30/2010	
Re-install shielding	11/30/2010	Riggers
Install RPC3 South environmental controls (heaters and thermostats)	11/30/2010	Electrician

Shutdown 2010 Other Work

TECHNICAL SUPPORT 2010

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
RPC3 North unfinished business	7/15/2010	Electronics and cabling, grounding issues, environmental controls
MuTrigger FEE unfinished business	7/15/2010	MMS cable trays,
RHIC Summer Sunday Tour	8/15/2010	During bakeout
DC/PC maintenance/repair	11/15/2010	FEM and wire troubleshooting and repairs, major efforts will require longer shutdon
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
PHENIX Survey Review	11/30/2010	
Procedure Updating	11/30/2010	
FVTX support	11/30/2010	As required
FoCal	11/30/2010	As required
Gas Mixing House maintenance & Repair	11/30/2010	
PHENIX Infrastructure maintenance, repair, upgrade	11/30/2010	TBD
Gas Pad expansion completion (grouting)	11/30/2010	
Gas Pad: new gas storage details	11/30/2010	
Gas Pad: New Ar Dewar	11/30/2010	
Gas Pad services new dewar support, maintenance and improvements	11/30/2010	

5/13/2010

Shutdown 2010 Other Work (Cont'd)

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
AH Flood prevention improvements	11/30/2010	
IR Bridge Electrical service upgrade	11/30/2010	Support for 4 full racks in 2010, 4 more (8 total) in future
RPC Factory Support	11/30/2010	
Rack Room upgrade	11/30/2010	TBD
PHENIX Design Documentation	11/30/2010	
CM Crane	11/30/2010	
CM alignment stops	11/30/2010	TBD
Gas System maintenance, repair, upgrade	11/30/2010	
Other subsystem maintenance, repair/upgrade	11/30/2010	TBD
Future upgrade support	11/30/2010	RPC1, RPC absorbers, FVTX, FOCAL, other TBD
Prepare for Run 11	11/30/2010	Normal end of shutdown tasks, typically taking 3-4 weeks
Run 11 Start	12/1/2010	
End of Shutdown Party	~12/3/2010	

TECHNICAL SUPPORT NO-O

2009 Building Maintenance Issues

TECHNICAL SUPPORT NO-0

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall and over door between control room and elect. ass'y room.
- General maintenance for Trailer Offices (in progress)
- Trailer Office Modifications planning in progress (new exterior siding?)
- New roof leaks in laser room and IR (southeast corner)
- Flooding in AH/ Driveway heaving [Lake PHENIX]



5/13/2010

PHENIX Procedure Review Current Status:

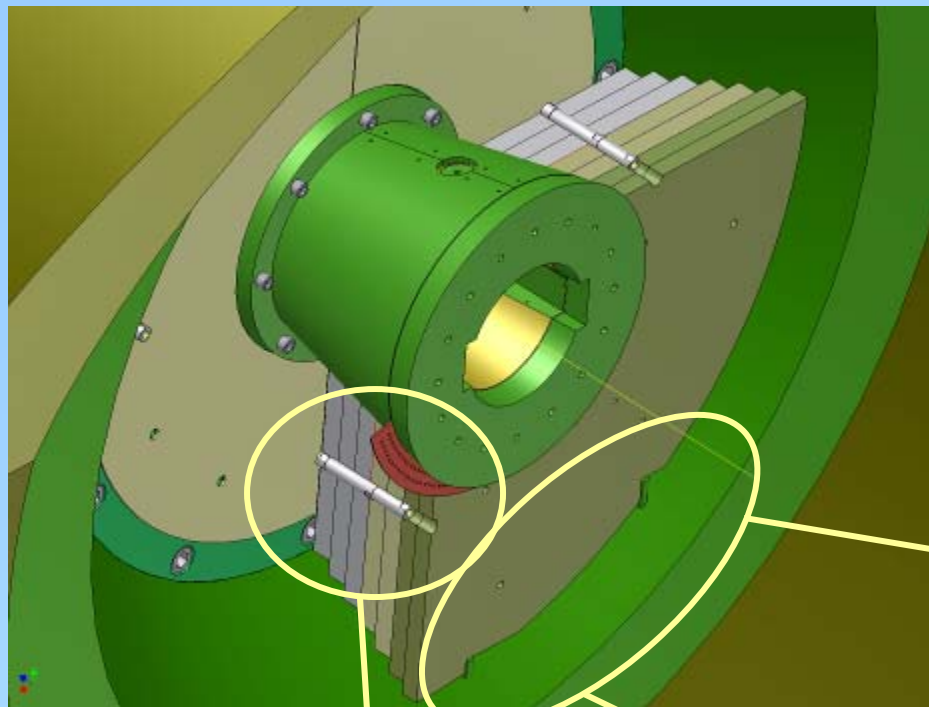
147 Procedures Identified

- 84 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)
- 10 CAD procedures relevant to PHENIX, all are current and up-to- date.
(CAD web access to these documents is not up to date)
- 42 PHENIX approved procedures.
 - 1 is currently under review
 - 41 are current and up-to-date
- 11 Proposed/Draft Procedures (never previously formalized)

Web retrieval of latest procedures now available from PHENIX Internal:

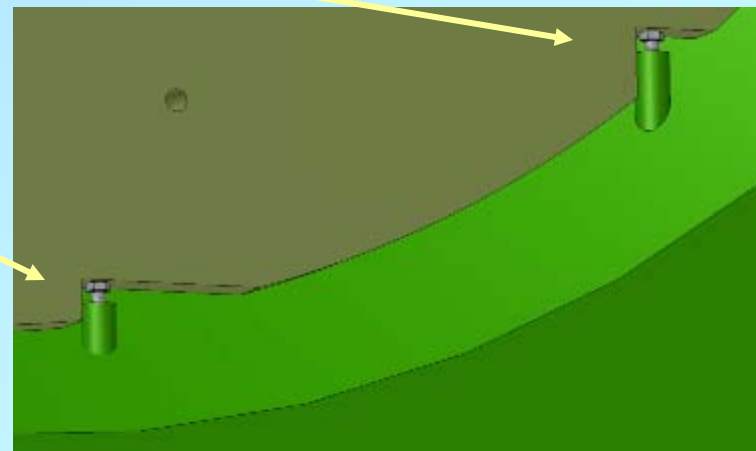
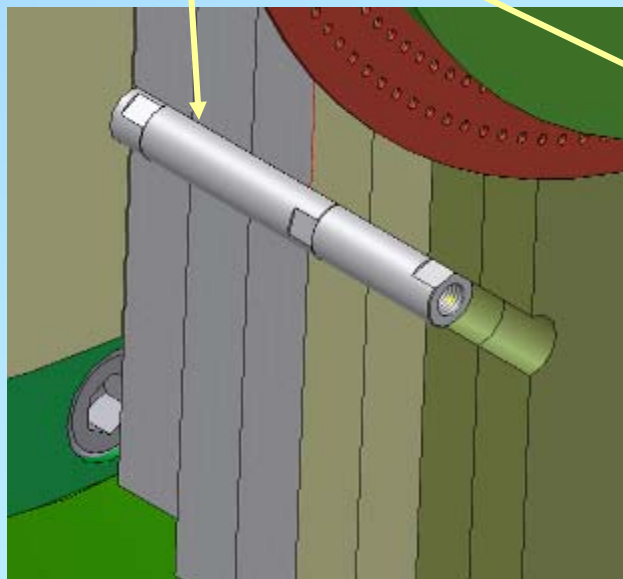
http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

Nothing new to report this week.



RPC Absorber Final Design

- Welded & tapped vertical support bossess
- 3 stage positioning rod



Safety, Security, Etc.

1. **Reminder: Unprotcted wires and cables on the floor are unacceptable. (Includes extension cords).**
2. **Be Safe!**

TECHNICAL
SUPPORT
2010

Rack Room Gutter Cleaning

- Soon we are replacing the main Event Builder Switch with our new flagship switch.
- Means a lot of cable pulling in the “Event Builder Aisle”
- In particular the cable tray on top of the rack has a lot of sediments which would benefit from a start from scratch

This is how it looks

- The Event Builder Aisle
- This is the tray I'm talking about



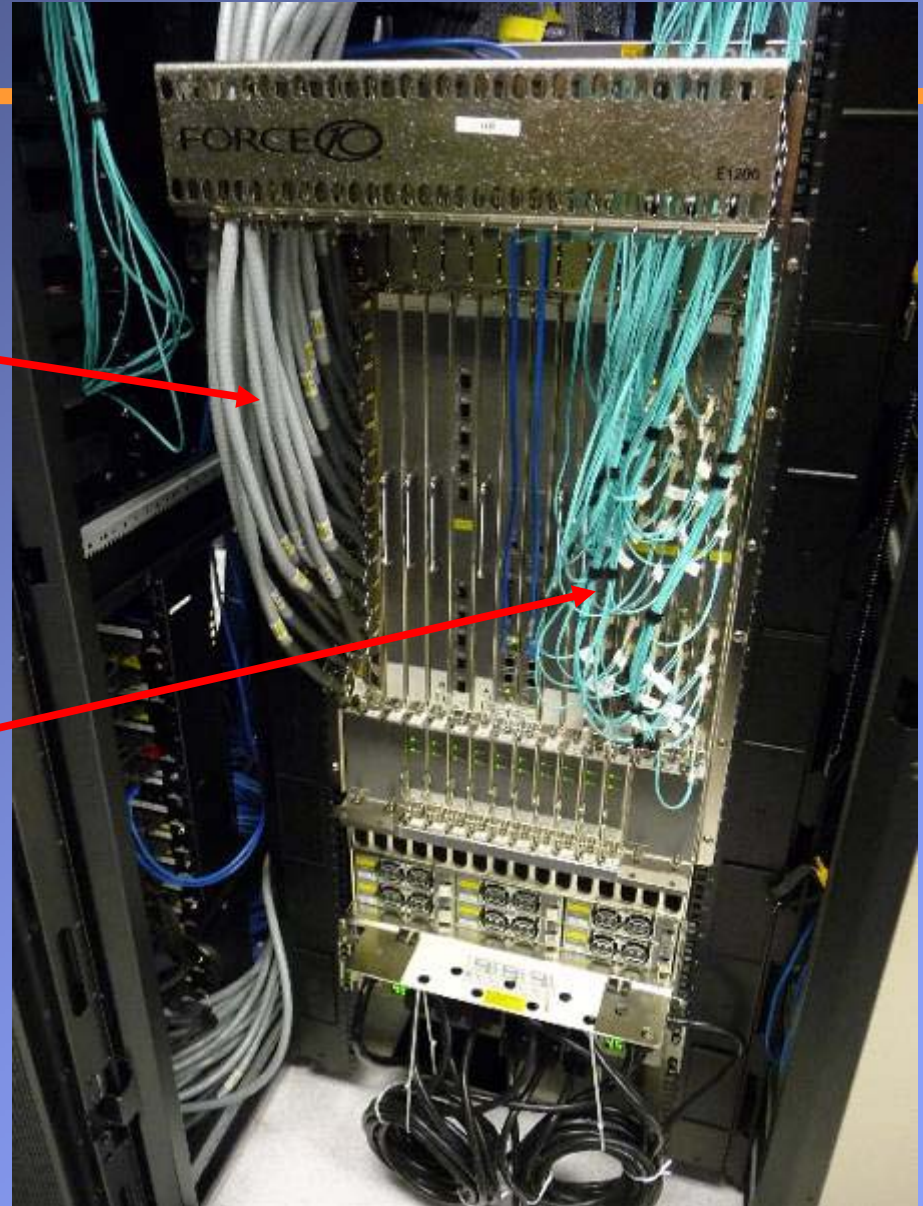
The future Switch

Standard Gigabit ports

“MRJ-20” cable bundles with 6 Gig ports each go to patch panels (or directly to the machines) May make our cable distribution easier, bring a few bundles to the racks

10GbE ports

Standard fibers with “SFP+” connectors



The Task

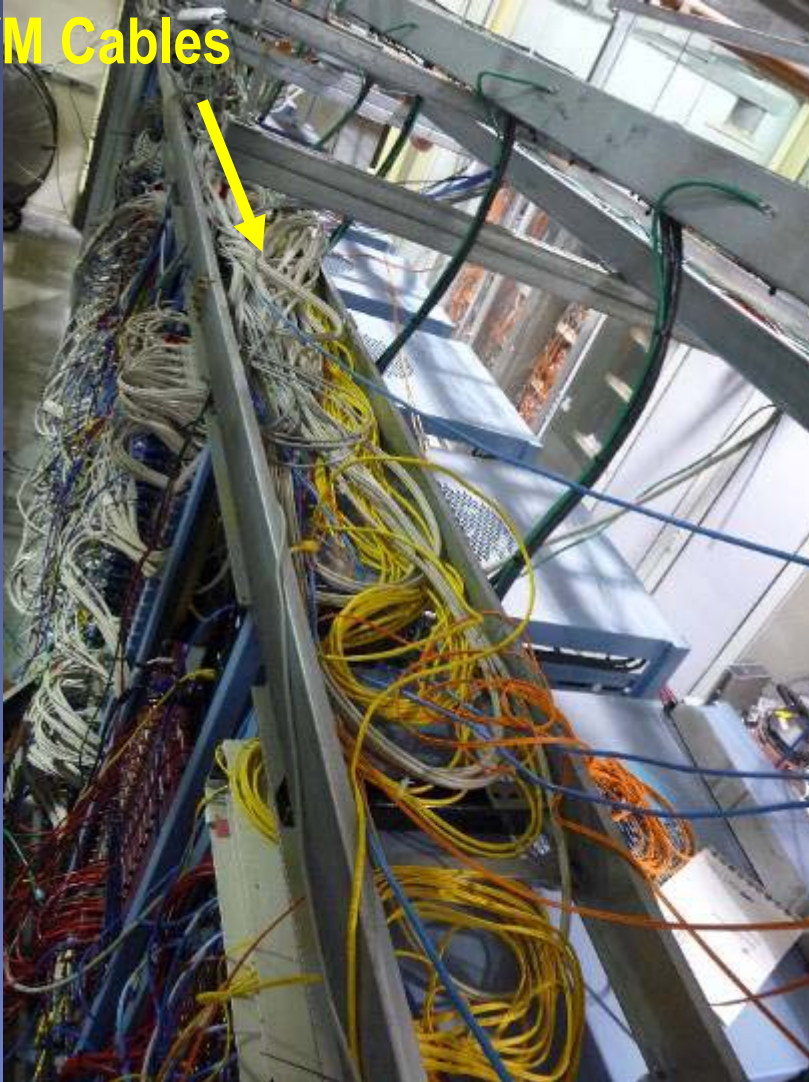
- We'll rig up a few alternate connections to the first two racks to keep them alive (I do that)
- We disconnect all network cables (about 150 or so) and pull them out, roll them up without tangling them up, remove labels
- More than 100 are local to the rack row, about 50 go somewhere else
- There are fibers mixed in, they have to go out first
- Not by count but by bulk the KVM cables are the biggest, they stay, but it looks like many of them are on top
- From above this doesn't look like much, but on the ground it looks like a big deal

Timeline

- When our run ends, we can get going (early June)
- Find some room to coil up the pulled cables
- Devise a good labelling scheme for the future
- Then think about putting the new stuff in
- 2 weeks? Reasonable?

Tray from above and below

- KVM Cables



- Current Switch



- This goes away

Where To Find PHENIX Engineering Info

TECHNICAL SUPPORT 2010



Let's keep moving so we can
make it successfully through
this challenging shutdown

Links for the weekly planning meeting slides, archives of past meeting slides, long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm